

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Superior Refining Company Explosion - Removal Polrep
Final Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Subject: POLREP #5
Final Polrep/Sitrep
Superior Refining Company Explosion

Superior, WI

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From: David Morrison, OSC

Date: 11/6/2018

Reporting Period: June 14, 2018 - August 3, 2018

1. Introduction

1.1 Background

Site Number:		Contract Number:	
D.O. Number:	NRC 1210367	Action Memo Date:	
Response Authority:	OPA	Response Type:	Emergency
Response Lead:	EPA	Incident Category:	
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	4/26/2018	Start Date:	4/26/2018
Demob Date:	6/5/2018	Completion Date:	8/3/2018
CERCLIS ID:		RCRIS ID:	
ERNS No.:		State Notification:	WI DNR
FPN#:	E18516	Reimbursable Account #:	

1.1.1 Incident Category

Emergency Response

1.1.2 Site Description

1.1.2.1 Location

The Superior Refining Company Refinery is located at 2407 Stinson Ave, Superior, Douglas County, WI 54880. The refinery is located southeast of the city center of Superior. Lake Superior is located to the north/northeast of the refinery.

1.1.2.2 Description of Threat

An explosion in the facility resulted in an asphalt tank fire and a significant smoke plume as well as several smaller fires, and the threat of a hydrogen fluoride (HF) release to the community. Oil continued to leak from damaged tanks and piping on the refinery, resulting in a potential continued discharge to Newton Creek. Newton Creek drains into Lake Superior. EPA had observed a sheen leaving the refinery property in the ditch and in the Creek on 4/27 and 4/28, 2018.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Following arrival at the scene, EPA began to conduct air monitoring.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

On 4/26/18 at approximately 1000 CST, Superior Refining Company was shutting down equipment at the refinery in preparation for turn around when an explosion occurred. It is believed that an unknown hydrocarbon was released, which ignited. By 1100 CST, the small fire was extinguished. During the explosion, however, a piece of shrapnel damaged tank 101, which was full of asphalt (50,400 barrels). Around 1200 CST, a second fire began in the breached Tank 101. Due to the ensuing fire, the refinery was subsequently evacuated. A community evacuation was also ordered by the Fire Department. The evacuation was approximately 6 miles wide by 10 miles long downwind, primarily driven in size due to a concern about a potential failure of a tank containing 15,000 pounds of hydrofluoric acid (HF).

The fire spread at the facility to process units, ground fires by tanks 103 and 104, a vac-tower, a crude unit, tank 100, gate 101, tank 103 mixer, and the FCC main column. 7 large (50K barrel) tanks were affected and had insulation burned off. The fire in tank 101 was initially extinguished at 1842 CST, however, hot spots associated with the tank were not completely extinguished until 2355 CST.

Superior Refining Company filed an NRC report (#1210367) at 1126 EST on 4/26/18 reporting an air release of an unknown hydrocarbon which resulted in an explosion.

2.1.2 Response Actions for Current Reporting Period

Activities conducted from 06/14 – 08/03, 2018:

Environmental Response:

- Community Air Monitoring efforts were continued until the site was considered to be stabilized. Community monitoring was stood-down on June 19 after roughly 88,000 air monitoring readings were taken in the community. None of the community monitoring efforts had shown concentrations above health-based thresholds. The results of the community monitoring program can be found on the Douglas County Department of Health and Human Services website.

- Oil recovery and cleanup continued. On-site cleanup of asphalt oil continued. The ton equivalent to approximately 14,000 barrels was recovered of the estimated 17,000 barrels released. The release volume was estimated down from 22,000 bbls. Oil boom was being maintained at storm water ponds and Newton creek to capture any unintended new releases until cleanup is done. The company was regularly collecting surface water samples from the onsite storm water ponds, and at multiple locations along the length of Newton Creek under coordination with the WI DNR.

- Protections and deterrents for wildlife continued which including fencing, flagging, canine patrols and laser stations. Overall Event Summary:

- Deceased Wildlife: 2 rabbits, 1 weasel, 1 fawn, 3 grackles, 3 robins, 1 starling, 1 American bittern, 2 geese, 1 redwing blackbird, 4 unidentified birds, 2 frogs
- Wildlife released after cleaning : 5 geese, 4 goslings, 3 mallards, 3 Killdeer (1 adult and 2 chicks), 1 robin
- Wildlife to be released (08/03/18): Oiled Water Vole
- Relocated: 30 adult geese, 63 goslings

- Other: Oiled fire-fighting water was being treated at the on site WWTP.

Threat Mitigation Efforts:

- The Facility continues to develop and implement systems' hydrocarbon de-inventory plans.
 - Efforts are underway to systematically restore power to parts of the refinery,
 - Efforts are underway to Rebuild Control Systems for many major refinery components.
- The Refinery remains inoperable.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

The refinery is owned by Superior Refining Company, LLC. A notice of federal interest has been issued to Superior Refining Company, LLC.

2.1.4 Progress Metrics

Waste	Quantity Released	Quantity Recovered	Disposal
Asphalt Oil (tank 101)	17,000 barrels	14,000 + (on going)	Shamrock Industrial Landfill, Cloquet, MN.
Oily Fire Fighting water	21 Million Gallons	majority/unknown	Held/treated on-site WWTP
PFAS Fire Fighting water	21 Million Gallons	majority/unknown	Treated on-site. 20,000 lbs. spent granular activated carbon incinerated at Clean Harbors, Kimball, NE.
No. 6 Fuel Oil (near tank 54)	460 gallons	majority/unknown	Recycled in facility
Heat Transfer Fluid, tank coils (therminol)	1,750 gallons	majority/unknown	Recycled in facility

Regional Metrics

Miles of river systems cleaned and/or restored Approximately 1.5 miles (Newton Creek)

Cubic yards of contaminated

This is an Integrated River Assessment. The numbers should overlap.

sediments removed and/or capped
 Gallons of oil/water recovered 21 million gallons oily fire-fighting water
 Acres of soil/sediment cleaned up in floodplains and riverbanks
 Number of contaminated residential yards cleaned up 75 + (debris/insulation)
 Number of workers on site
 Petroleum Hydrocarbons, Asphalt, Fuel Oil

Stand Alone Assessment

Contaminant(s) of Concern

Oil Response Tracking

Estimated volume	Initial amount released	17,000 bbls
	Final amount collected	14,000+ (ongoing)
CANAPS Info	FPN Ceiling Amount	\$125,000
	FPN Number	E18516
	Body of Water affected	Lake Superior Bay

Administrative and Logistical Factors (Place X where applicable)

Precedent-Setting HQ Consultations (e.g., fracking, asbestos)	X	Community challenges or high involvement	Radiological
More than one PRP		Endangered Species Act / Essential Fish Habitat issues	Explosives
AOC		Historic preservation issues	X Residential impacts
UAO		NPL site	Relocation
DOJ involved		Remote location	Drinking water impacted
Criminal Charges Have Been Filed*		Extreme weather or abnormal field season	Environmental justice
X Tribal consultation or coordination or other issues		Congressional involvement	X High media interest
Statutory Exemption for \$2 Million		Statutory Exemption for 1 Year	X Active fire present
X Hazmat Entry Conducted – Level A, B or C	X	Incident or Unified Command established	X Actual air release (not threatened)

Green Metrics

Metric	Amount	Units
Containment boom cleaned for reuse.	several hundred feet	
Recovered/recycled fuel oil & heat loop Oil	460 + 1750	gallons

2.2 Planning Section

2.2.1 Anticipated Activities

The Incident Command Structure was stood-down on June 19, 2018. EPA remains in support of any environmental response needs for the State of Wisconsin, The City of Superior, Douglas County, or the Fond du Lac Tribe.

WI DNR will continue to oversee wildlife response efforts until the oil is fully recovered from open areas on the site. Likewise, Newton Creek and off-site water impacts will be monitored until no further threats from runoff can occur.

2.2.1.1 Planned Response Activities

WI DNR has the lead to continue to monitor the response efforts

2.2.1.2 Next Steps

Contribute to after-action reviews as appropriate

2.2.2 Issues

None

2.3 Logistics Section

R5 EPA Emergency Response Staff assisted with logistics,
 EPA START contractor facilitated EPA air monitoring efforts
 EPA ERT supported air monitoring response and data management

2.4 Finance Section

2.4.1 Narrative

An FPN was initially opened for \$50,000. An increase to \$100,000 was approved by the fund center on 4/28/18. This was subsequently raised to \$125,000 on 05/29/18.

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
TAT/START	\$75,000.00	\$50,723.53	\$24,276.47	32.37%

Intramural Costs				
USEPA - Direct	\$106,902.00	\$18,120.04	\$88,781.96	83.05%
USEPA - InDirect	\$18,098.00	\$11,655.24	\$6,442.76	35.60%
Total Site Costs	\$200,000.00	\$80,498.81	\$119,501.19	59.75%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

2.5.1 Safety Officer

OSC and Superior Refining Safety Officer are filling this role.

2.5.2 Liaison Officer

OSC and Superior Refining Liaison Officer are filling this role.

2.5.3 Information Officer

Rachel Bassler,
Francisco Arcaute

3. Participating Entities

3.1 Unified Command

Superior Refinery and Husky Corporation are currently in response lead. EPA and WI DNR are monitoring activities.

3.2 Cooperating Agencies

Superior Fire Department
Douglas County Emergency Management
Superior Police Department
Wisconsin Department of Natural Resources (WDNR)
Minnesota Pollution Control Agency (MPCA)
Agency for Toxic Substances and Disease Registry (ATSDR)
Douglas County Health Department
Wisconsin Department of Health Services
Minnesota Department of Health
Occupational Safety and Health Administration (OSHA)
Chemical Safety Board (CSB)

4. Personnel On Site

EPA: One on-site as needed.
WDNR: Program Staff Follow-up as needed.

5. Definition of Terms

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
WDNR	Wisconsin Department of Natural Resources
EPA	Environmental Protection Agency
ERRS	Emergency and Rapid Response Service
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
OPA	Oil Pollution Act
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NRC	National Response Center
OSC	On Scene Coordinator
RCRIS	Resource Conservation and Recovery Act Information System
PRP	Potentially Responsible Party
CWA	Clean Water Act
START	Superfund Technical Assessment and Response Team
US FWS	United States Fish and Wildlife Service
USCG	United States Coast Guard

6. Additional sources of information

6.1 Internet location of additional information/report

Additional information can be found on the Douglas County Website: <https://www.douglascountywi.org/>

6.2 Reporting Schedule

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7. Situational Reference Materials

Initial Air Monitoring Plan,
Wildlife Response Plan,

Water Sampling Plan,
Waste Management Plan.
Asbestos Response Management Plan.